

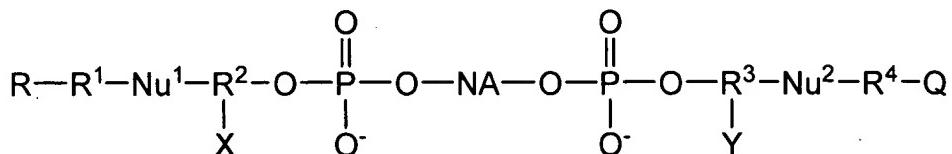
1    **Amendments to the Claims:**

2    This listing of claims will replace all prior versions, and listings of claims in the application:

3    **Listing of Claims:**

4                1-31. (Canceled)

1                32. (Previously presented) A probe nucleic acid having the formula



3    wherein,

4                NA is a nucleic acid chain comprising nucleic acid monomers selected from the  
5                group consisting of natural nucleic acids, modified nucleic acids and  
6                combinations thereof;

7                R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are linker moieties independently selected from the group  
8                consisting of substituted or unsubstituted alkyl and substituted or  
9                unsubstituted heteroalkyl;

10              Nu<sup>1</sup> and Nu<sup>2</sup> are members independently selected from the group consisting of  
11              nucleotide residues and nucleoside residues;

12              R is a molecular energy transfer donor;

13              Q is a molecular energy acceptor; and

14              X and Y are the same or different and are non-nucleic acid stabilizing moieties  
15              that interact to bring R and Q into operative proximity, thereby enabling  
16              transfer of energy from R to Q, wherein said probe nucleic acid sequence  
17              is not hybridized to a target nucleic acid.

1                33. (Currently amended) The probe nucleic acid compound according to  
2    claim 32, wherein said molecular energy transfer donor is a fluorophore.

1               34. (Currently amended) The probe nucleic acid compound according to  
2 claim 32, wherein said molecular energy acceptor is a fluorescence quencher.

1               35. (Currently amended) The probe nucleic acid compound according to  
2 claim 32, wherein X and Y are both hydrophobic moieties.

1               36. (Currently amended) The probe nucleic acid compound according to  
2 claim 35, wherein X and Y are members independently selected from the group consisting of  
3 saturated hydrocarbons, unsaturated hydrocarbons, steroids, fatty acids, fatty alcohols and  
4 hydrophobic peptides.

1               37. (Currently amended) The probe nucleic acid compound according to  
2 claim 32, wherein natural nucleic acids are members selected from the group consisting of  
3 deoxyribonucleotides, ribonucleotides and combinations thereof.

1               38. (Currently amended) The probe nucleic acid compound according to  
2 claim 32, wherein said modified nucleic acids are peptide nucleic acids.

1               39. (Currently amended) The probe nucleic acid compound according to  
2 claim 32, wherein said nucleic acid monomers are joined by linkages that are members  
3 independently selected from the group consisting of phosphodiesters and modified  
4 phosphodiesters.

1               40. (Currently amended) The probe nucleic acid compound according to  
2 claim 39, wherein said modified phosphodiesters are members selected from the group  
3 consisting of phosphorothioates and phosphoramidates.

1               41. (Currently amended) The probe nucleic acid compound according to  
2 claim 32, wherein said nucleic acid chain further comprises a hybridization enhancing moiety.

1           42. (Currently amended) The probe nucleic acid compound according to  
2 claim 41, wherein said hybridization enhancing moiety is a member selected from the group  
3 consisting of intercalating agents, minor groove binders and modified exocyclic bases.

1           43. (Canceled)

1           44. (Previously Presented) The probe nucleic acid compound according to  
2 claim 32, wherein said compound is immobilized on a solid surface.

1           45. (Currently amended) A method for amplifying a polynucleotide, wherein  
2 a probe nucleic acid compound according to claim 32 is a primer in said method, said method  
3 comprising:

- 4                 (a) hybridizing said primer to said polynucleotide; and  
5                 (b) amplifying said polynucleotide.

1           46. (Currently amended) The method according to claim 45, wherein said  
2 amplifying is a member selected from the group consisting of polymerase chain reaction (PCR),  
3 nucleic acid sequence based amplification (NASBA), strand displacement amplification (SDA)  
4 and combinations thereof.

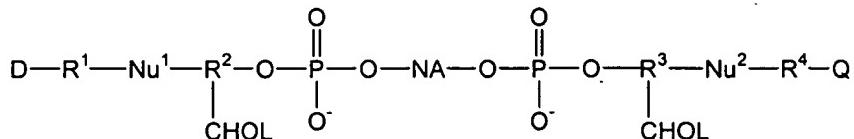
1           47. (Currently amended) A method for detecting or quantitating a nucleic  
2 acid, wherein the probe nucleic acid compound according to claim 32 is used as a probe, said  
3 method comprising:

- 4                 (a) hybridizing said compound to said nucleic acid; and  
5                 (b) detecting a change in fluorescence of said compound, thereby detecting or  
6 quantitating said nucleic acid .

1           48. (Previously Presented) The method according to claim 47, wherein said  
2 method comprises a member selected from the group consisting of 5'-nuclease assay, rolling  
3 circle amplification and combinations thereof.

1           49. (Currently amended) A kit for quantitating nucleic acid, said kit  
2 comprising a probe nucleic acid compound according to claim 32.

1           50. (Currently amended) A probe nucleic acid compound having the formula:  
2



4       wherein,

5       CHOL is a cholesterol derivative;

6       R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are linker moieties independently selected from the group  
7       consisting of substituted or unsubstituted alkyl and substituted or  
8       unsubstituted heteroalkyl;

9       Nu<sup>1</sup> and Nu<sup>2</sup> are members independently selected from the group consisting of  
10      nucleotide residues and nucleoside residues;

11      NA is a nucleic acid sequence;

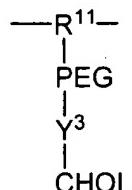
12      D is a donor of light energy; and

13      Q is a quencher of light energy,

14      wherein the CHOL moieties interact to bring D and Q into operative proximity,  
15      thereby enabling transfer of energy from D to Q, and

16      wherein said probe nucleic acid sequence is not hybridized to a target nucleic  
17      acid.

1           51. (Currently amended) The probe nucleic acid compound according to  
2       claim 50, wherein R<sup>2</sup>-CHOL and R<sup>3</sup>-CHOL are independently selected and have structures  
3       according to the formula:



5 wherein,

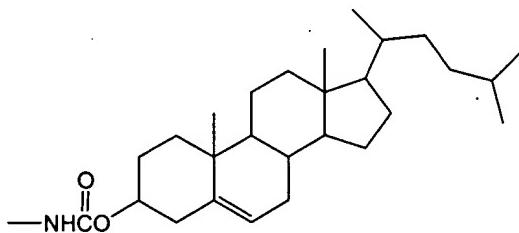
6           R<sup>11</sup> is a member selected from the group consisting of substituted or unsubstituted  
7 alkyl and substituted or unsubstituted heteroalkyl;  
8           PEG is polyethylene glycol;  
9           Y<sup>3</sup> is an organic functional group adjoining said PEG to said CHOL.

1           52. (Currently amended) The probe nucleic acid compound according to  
2 claim 51, wherein said PEG has from about 2 to about 20 ethylene glycol subunits.

1           53. (Currently amended) The probe nucleic acid compound according to  
2 claim 51 in which R<sup>11</sup> is substituted or unsubstituted alkyl.

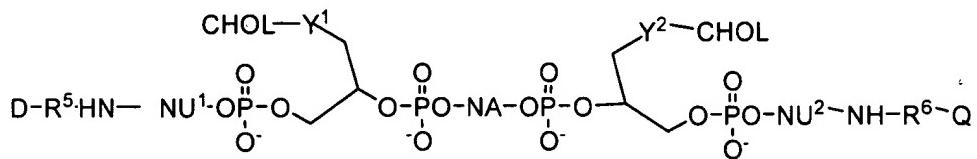
1           54. (Currently amended) The probe nucleic acid compound according to  
2 claim 53, wherein R<sup>11</sup> is C<sub>1</sub>-C<sub>6</sub> substituted or unsubstituted alkyl.

1           55. (Currently amended) The probe nucleic acid compound according to  
2 claim 51, wherein Y<sup>3</sup>-CHOL has the structure:



1           56. (Currently amended) The probe nucleic acid compound according to  
2 claim 50, wherein Nu<sup>1</sup> and Nu<sup>2</sup> are nucleotides having an exocyclic amine group to which -R<sup>1</sup>-D  
3 and -R<sup>4</sup>Q are attached, respectively.

1           57. (Currently amended) A probe nucleic acid compound having the formula:



3           wherein,

4           NA is a nucleic acid sequence;  
5           Nu<sup>1</sup> and Nu<sup>2</sup> are members independently selected from the group consisting of  
6               nucleotide residues and nucleoside residues;  
7           Y<sup>1</sup> and Y<sup>2</sup> are linking groups independently selected from the group consisting of  
8               substituted or unsubstituted alkyl and substituted or unsubstituted  
9               heteroalkyl;  
10          R<sup>5</sup> and R<sup>6</sup> are linking groups independently selected from the group consisting of  
11               substituted or unsubstituted alkyl and substituted or unsubstituted  
12               heteroalkyl;  
13          D is a donor of light energy; and  
14          Q is a quencher of light energy,  
15          wherein each CHOL interacts with the other CHOL to bring D and Q into  
16               operative proximity, thereby enabling transfer of energy from D to Q, and  
17               wherein said probe nucleic acid sequence is not hybridized to a target nucleic  
18               acid.

1           58. (Currently amended) The probe nucleic acid compound according to  
2          claim 57, wherein Y<sup>1</sup> and Y<sup>2</sup> are members independently selected from substituted or  
3          unsubstituted heteroalkyl.

1           59. (Currently amended) The probe nucleic acid compound according to  
2          claim 58, wherein Y<sup>1</sup> and Y<sup>2</sup> are polyethylene glycol.

60. (Currently amended) The probe nucleic acid compound according to  
claim 59, wherein said polyethylene glycol has from about 2 to about 20 ethylene glycol  
subunits.

1           61. (Currently amended) The probe nucleic acid compound according to  
2          claim 57, wherein Y<sup>1</sup>-CHOL and Y<sup>2</sup>-CHOL have the structure:

3

1 62. (Cancelled)

